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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,235	02/19/2002	Robert O. Conn	X-736 US	7201
24309	7590	11/06/2003		
XILINX, INC ATTN: LEGAL DEPARTMENT 2100 LOGIC DR SAN JOSE, CA 95124			EXAMINER HU, SHOUXIANG	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/079,235

Applicant(s)

CONN, ROBERT O.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-51 is/are pending in the application.
- 4a) Of the above claim(s) 14-16 and 26-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-13 and 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. During a telephone conversation with Justin Liu on October 29, 2003, a provisional election was made without traverse to prosecute the invention of Species 1, claims 2-13 and 17-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-16 and 26-27 are accordingly withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Species Election/Restrictions

This application contains claims 2-27 further directed to the following patentably distinct species of the claimed invention:

Species 1, embodiment of Figs. 1-2.

Species 2, embodiment of Figs. 3-4.

Species 3, embodiment of Figs. 5.

Species 4, embodiment of Figs. 6.

To confirm the telephone election, applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, at least claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and

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a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(l).

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2. In addition, claims 28-51 are also withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim, in view of the election made **without** traverse in Paper No. 3.

Accordingly, claims 2-51 are pending in this application; and claims 2-13 and 17-25 remain active in this office action.

Claim Objections

3. Claims 2-13 and 17-25 are objected to because of the following informalities and/or defects:

In claim 6, the term of "directing the energy beam" should read as: --the step of directing an energy beam at the semiconductor element including directing the energy beam--; and, the term of "the semiconductor substrate" should read as: --the substrate--.

In claims 21-25, claim 21 apparently should depend on claim 6, in view of the latest amendment to claims 2-5, instead of on claim 1 that is already canceled.

In claim 24, line 6, the term of "further comprises" should read as: --comprises--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 2-13 and 17-25, as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Masushige et al. ("Masushige"; JP 4-226039, August 14, 1992) in view of Vu et al. ("Vu"; US 5,256,562).

Masushige discloses a method (see Figs. 1-3; also see its English abstract) for altering the semiconductor characteristics of a semiconductor element (FET) formed on a substrate (1), comprising the step of directing an energy beam (6, a laser beam) at a first portion (including the channel region) of the semiconductor element through the backside of the substrate, wherein the energy beam is substantially absorbed by the first portion.

Although Masushige does not expressly disclose that the method can further comprise the step of thinning the substrate, Vu teaches a step of thinning the substrate having a FET thereon by bonding it on supporting substrate for forming the pixel electrode on the back surface to better activate the liquid crystal layer (see col. 9, lines 47-55; also see the supporting substrate 110' and the thinned substrate 34' in Figs. 7-D-7H).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Vu's step of thinning the substrate into the method of Masushige, so that a TFT display device with better activation for the liquid crystal layer would be obtained.

Regarding claims 2-5, it is noted that it is art-known that a powerful energy beam can be generated from a CO₂ laser, a YAG laser, or a laser from a photomask-repairing

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laser ablation system, as evidenced in the prior references such as Freedenberg et al. (US 5,609,780; see col. 1, lines 10-15, and col. 4, lines 60-65); and/or Hashimoto et al. (US 5,318,869; see the abstract). Regarding claim 4, it is further noted that lights with the recited wavelength can be naturally generated from a CO₂ laser.

Regarding claims 7 and 10, the FET in Vu further includes a passivation layer (36) thereon, along with an adhesive layer (82').

Regarding claims 8 and 9, it is art-known that an oxide layer can be formed on the support structure in order to form better bonding through naturally covalently bonding between the oxide layer and a passivation layer covering the starting substrate, as evidenced in the prior art references such as Nakasato et al. (US 5,071,785; see the passivation layer 1c covering the starting substrate 1b and the oxide layer covering the supporting substrate 1a in Figs. 4A-4C).

Regarding claims 11-13, it is noted that grinding, CMP and etch each are art-known methods for thinning a substrate.

Regarding claims 17, 18 and 21, it is noted that silicon wafer, GaAs wafer and a substrate comprising an amorphous silicon layer each are art-known starting substrate or layer for forming semiconductor elements thereon.

Regarding claim 19, the substrate of Masushige further comprises an insulating plate (1 and/or 2).

Regarding claims 21-25, the semiconductor element in Masushige further comprises: source/drain regions (9, 10); gate insulator (4, commonly formed of an oxide); a channel region (11); and a gate (5). In addition, regarding claims 22-25, it is

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further noted that metal gate structure and salicide gate/source/drain structure each are art-known FET structures for better electrode conductance and/or alignment, as evidenced in the prior art references such as: Havemann (US 5,252,502; see the metal gate 42 in Figs. 1l, 2m and 3o); and Isobe et al. (US 6,337,594; see the TiSi salicide gate 6a, source 9a and drain 10a in the cover page figure).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B and C are cited as being related to a laser tool and/or its application; Reference D to substrate bonding; References E and F to metal gate and/or salicide gate/source/drain structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703)306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SHOUXIANG HU
PRIMARY EXAMINER

SH
November 2, 2003

A handwritten signature in cursive script, appearing to read "Shouxiang Hu", written in black ink.